AMENDMENT TO THE CLAIMS

Replace the claims with the following rewritten verision:

1. (Currently Amended) Hardware implemented filtering method comprising: ~~the steps of~~

~~–~~establishing a representation (DIS) of ~~the~~a derivative of at least a part of a time-quantized input signal (IS), and

~~–~~establishing at least one sample of a time- and amplitude-quantized output signal (OS) by performing filtering on the basis of at least a part of a filter representation (IFC1, IFC2, IFC3) and said representation (DIS) of the derivative of at least a part of said input signal (IS).

2. (Currently Amended) Hardware implemented method of convolving in ~~the~~a time domain an input signal ($x[n]$) with an impulse response ($h[k]$) in order to establish an output signal ($y[n]$), comprising:

providing~~characterised by that~~ said output signal ($y[n]$) ~~is provided~~ at least partly by a convolution in the time domain of a difference signal representation ($x'[n]$) of said input signal ($x[n]$) and a sum representation ($l[k]$) of said impulse response ($h[k]$).

3. (Currently Amended) Hardware implemented filtering method according to claim 1, whereby said ~~step of~~ establishing at least one sample of a time- and amplitude-quantized output signal (OS) is implemented according to the method of claim 2.

4. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims ~~1 to 3~~2, whereby said impulse response is finite.

5. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to~~ 4, whereby said time-quantized input signal (IS) comprises in average at least 10~~, preferably at least 64, and even more preferably at least 128~~ samples for each input signal value change.

6. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 5~~, whereby said time-quantized input signal (IS) is a pulse width modulated signal.

7. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 6~~, whereby said establishing a representation (DIS) of the derivative of at least a part of said time-quantized input signal (IS) comprises ~~the step of~~ establishing a sequence of differences between successive samples of said at least a part of said input signal (IS).

8. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 7~~, whereby said at least a part of said time-quantized input signal (IS) in respect of its length corresponds to the length of said at least a part of an impulse response.

9. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 8~~, whereby said representation (DIS) of the derivative of at least a part of said time-quantized input signal (IS) is stored in a differentiated input signal representing array (DA).

10. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 9~~, whereby said establishing a representation (DIS) of the derivative of at least a part of a time-quantized input signal (IS) comprises ~~the step of~~ indexing corresponding times and directions of amplitude changes of said at least a part of said input signal (IS).

11. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 10~~, whereby the length of said at least a part of said filter representation (IFC1, IFC2, IFC3) is an integer multiple of the length of a symbol of said at least a part of said time-quantized input signal (IS).

12. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 11~~, whereby ~~the~~a number of changes within a symbol of said at least a part of said time-quantized input signal is constant.

13. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 12~~, whereby said times are indexed relative to each other.

14. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 13~~, whereby said establishing a representation (DIS) of the derivative of at least a part of a time-quantized input signal (IS) comprises ~~the step of~~ storing into a snapshot register (SR) said at least a part of said time-quantized input signal (IS).

15. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims ~~1 to~~ 14, whereby said establishing a representation (DIS) of the derivative of at least a part of a time-quantized input signal (IS) comprises ~~the step of~~ querying said snapshot register (RS) regarding input signal changes.

16. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 15~~, whereby said at least a part of said filter representation (IFC1, IFC2, IFC3) is a sum representation of at least a part of an impulse response.

17. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 16~~, whereby said at least a part of said filter representation (IFC1, IFC2, IFC3) is predetermined.

18. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 17~~, whereby said at least a part of said filter representation (IFC1, IFC2, IFC3) is implemented by means of at least one filter coefficient~~, more preferably at least 128 filter coefficients and even more preferably at least 384 filter coefficients~~.

19. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 18~~, whereby said at least a part of said filter representation (IFC1, IFC2,

IFC3) is implemented by means of at least one model, ~~preferably represented by~~comprising at least one polynomial.

20. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 19~~, whereby said implementation of said at least a part of said filter representation (IFC1, IFC2, IFC3) is adapted to utilize any symmetry of said filter representation.

21. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 20~~, whereby said at least a part of said filter representation (IFC1, IFC2, IFC3) is user-adjustable.

22. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 21~~, whereby said performing filtering comprises convolving said at least a part of said filter representation (IFC1, IFC2, IFC3) with said representation (DIS) of the derivative of at least a part of said time-quantized input signal (IS).

23. (Currently A~~m~~ended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 22~~, whereby said performing filtering further comprises for each of said at least one sample of a time- and amplitude-quantized output signal (OS) adding the result of multiplying an initial value (IV) of said at least a part of said time-quantized input signal (IS) with a value of said at least a part of said filter representation (IFC1, IFC2, IFC3).

24. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 23~~, whereby said performing filtering further comprises adding, for each of said at least one sample of a time- and amplitude-quantized output signal (OS), an initial value (IV) of said at least a part of said time-quantized input signal (IS).

25. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 24~~, whereby said performing filtering comprises exercising the

expression $y[n] = \sum_{k=0}^{N-2} \left(l[k] \cdot x'[n-k] \right) + l[N-1] \cdot x[n-(N-1)]$, where $y[n]$ represents said at least one sample of a time- and amplitude-quantized output signal (OS), $x[n]$ represents said at least a part of said time-quantized input signal (IS), $x'[n]$ represents said representation (DIS) of the derivative of $x[n]$, $l[k]$ represents said at least a part of said filter representation (IFC1, IFC2, IFC3), and N represents the length of $l[k]$.

26. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 25~~, whereby said performing filtering further comprises performing conventional filtering.

27. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 26~~, whereby ~~the~~a sample rate of said time- and amplitude-quantized output signal (OS) is different from ~~the~~a sample rate of said time-quantized input signal (IS).

28. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 27~~, whereby ~~the~~a sample rate of said time- and amplitude-quantized output signal (OS) corresponds to ~~the~~a symbol rate of said time-quantized input signal (IS).

29. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims ~~1 to 28~~22, whereby said convolving said at least a part of said filter representation (IFC1, IFC2, IFC3) with said representation (DIS) of the derivative of at least a part of said time-quantized input signal (IS) is performed for only some of the samples of said time-quantized input signal (IS)~~, preferably for only every 128th sample~~.

30. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 29~~, whereby said filter representation (IFC1, IFC2, IFC3) comprises a sum representation of a low-pass filter.

31. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 30~~, whereby said method is exercised in real time.

32. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 31~~, whereby said at least a part of a filter representation (IFC1, IFC2, IFC3) represents at least a part of an impulse response.

33. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 32~~, whereby said at least a part of a filter representation (IFC1, IFC2, IFC3) represents the derivative of at least a part of an impulse response.

34. (Currently Amended) Hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 33~~ further comprising the step of

- integrating at least once said time- and amplitude-quantized output signal (OS).

35. (Currently Amended) Hardware implemented decimation method for decimating a time-quantized input signal (IS) comprising: ~~the steps of~~

~~———~~dividing said time-quantized input signal (IS) into intervals,

~~———~~for each of said intervals establishing a sample of a time- and amplitude-quantized output signal (OS) according to ~~any of the~~ claims 1 ~~to 34~~.

36. (Currently Amended) Fast filtering means (FFM) comprising:

–differentiation means (DM) for establishing a representation (DIS) of ~~the~~a derivative of at least a part of a time-quantized input signal (IS), and

–filtering means (FM) for establishing at least one sample of an output signal (OS) by performing filtering on the basis of at least a part of a filter representation (IFC1, IFC2, IFC3) and said representation (DIS) of the derivative of at least a part of said input signal (IS).

37. (Currently Amended) Fast filtering means (FFM) according to claim 36 ~~implementing~~configured to implement the hardware implemented filtering method according to ~~any of the~~ claims 1 ~~to 34~~ or the hardware implemented decimation method according to claim 35.